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Using a Content / Behavior Matrix in the Instructional Planning Process

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ARTICLES

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Instruction is more likely to be successful when the instructor is clear about his/her goals. Upon this axiom, a large number of instructional practices are based. One derivative of this axiom is the following: instruction is more likely to be efficient and effective when the instructor can state his/her instructional goals in clear behavioral objectives. To further clarify the instructor's goals, one might undertake a task analysis, job analysis, content analysis, an analysis of competencies, a needs analysis and/or a learning hierarchy. The results of such "front-end" analyses are usually displayed in the form of page after page of goals, objectives and enabling objectives statements. Theoretically the instructor uses behavioral objectives to create evaluation items which will allow him/her to decide whether the instruction is successful in its present form or needs to be revised.

While there are no definitive surveys of the use of behavioral objectives by faculty in higher education (Davies, 1976), it is safe to say that few faculty use behaviorally stated objectives in planning their instruction or in constructing tests and evaluations. For example, in his extensive survey of faculty development practices in United States colleges and universities, Centra (1976) found that only 4% of the institutions surveyed estimated that a majority of the faculty receive assistance from specialists in writing course objectives. Sixty-four percent (64%) of the institutions indicated that such assistance was not available at all.

Needs analyses, task analysis, behavioral objectives, taxonomies, and systematic evaluation procedures are powerful tools in the

hands of instructional developers. However, faculty members rarely utilize these tools at their own initiative.

In this paper, the use of a "content/behavior matrix" for instructional planning is proposed as an alternative to writing behavioral objectives. The advantages of such a system are described and several detailed examples are provided.

The Content/Behavior Matrix

The concept of an analysis chart to clarify the relations between ideals and activities in a curriculum was first proposed by Werrett Charters (1924). Ralph Tyler (1950) advanced the notion of a two-dimensional chart to express objectives clearly and concisely, whereby one axis of the graph represents "behavior" and the other, "content." The relationship between content and behavior is indicated at the intersection of the rows and columns with an x.

Benjamin Bloom and his colleagues (Bloom, 1971), following closely the work of Tyler, promoted the use of content/behavior matrices for instructional planning and evaluation, and issued a number of sample matrices in various academic fields. A sample matrix for one of Bloom's *Handbook* chapters, "Evaluation of Learning in Literature," prepared by Alan Purves, is represented in Figure 1. In Purves' example, instead of an "x" at the intersection of relevant content and behaviors, a number is placed to indicate the degree of emphasis that topic at that level of behavior is to receive in the instruction.

After careful study of the major publications on behavioral objectives, taxonomies and domains of learning (Bloom, 1956; Krathwohl, 1964; Harrow, 1972; Mager, 1975; Simpson, 1966) as well as special "how to" publications containing lists of action verbs (Pascal and Geis, 1977; Kemp and McBeath, 1976) the content/behavior matrix form in Figure 2 was constructed.

This matrix represents an attempt to separate, for instrumental reasons, the "content" or subject matter from the "behavior" or actions which students undertake with respect to that subject matter. In addition, the matrix is proposed as a planning tool that provides a better overview of the instruction, and the major emphasis therein, than lists of behaviorally stated objectives.

		BEHAVIOR																					
		Knowledge	*Application*							*Response*	*Expressed Response*										*Participation*		
	CONTENT	*Know*	*Apply knowledge of specific literary texts*	*Apply biographical information*	*Apply literary, cultural, social, political, and intellectual history*	*Apply literary terms*	*Apply critical systems*	*Apply cultural information*		*Respond*	*Re-create*	*Express one's engagement with*	*Analyze the parts*	*Analyze the relationships, the organization, or the whole*	*Express one's interpretation*	*Express one's evaluation*	*Express a pattern of preference*	*Express a pattern of response*	*Express a variety of responses*		*Be willing to respond*	*Take satisfaction in responding*	*Accept the importance*
		A	*B*	*C*	*D*	*E*	*F*	*G*		*H*	*I*	*J*	*K*	*L*	*M*	*N*	*O*	*P*	*Q*		*R*	*S*	*T*
Literary works	1. Epic and narrative poetry (precontemporary)*	1	1	1	1	2	0	0		1	0	1	2	2	2	1	0	0	0		0	0	1
	2. Epic and narrative poetry (contemporary)	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0		0	0	0
	3. Lyric poetry (precontemporary)	1	1	1	1	2	0	0		1	1	1	2	2	3	1	0	0	0		0	0	0
	4. Lyric poetry (contemporary)	1	1	0	0	0	0	0		0	0	0	0	0	1	0	0	0	0		0	0	1
	5. Poetic drama (precontemporary)	1	1	1	1	3	1	0		3	1	2	3	3	3	2	0	0	1		1	1	2
	6. Poetic drama (contemporary)	0	0	0	0	0	–	0		0	0	0	0	0	0	0	–	–	–		–	–	0
	7. Prose drama (precontemporary)	0	0	0	0	1	0	0		0	1	0	1	1	1	0	0	0	0		0	0	1
	8. Prose drama (contemporary)	1	0	0	1	1	0	0		1	1	1	1	1	2	1	0	0	0		0	0	1
	9. Novel (precontemporary)	1	1	1	1	1	0	0		1	0	1	2	2	3	1	0	0	0		0	0	1
	10. Novel (contemporary)	1	0	0	0	1	0	0		1	0	1	0	0	2	0	0	0	0		0	0	0
	11. Short fiction (precontemporary)	1	0	1	1	1	0	0		1	0	1	1	1	2	0	0	0	0		0	0	1
	12. Short fiction (contemporary)	1	0	1	1	1	0	0		1	0	1	1	1	2	1	0	0	0		0	0	1
	13. Nonfiction prose (precontemporary)	1	0	0	0	0	0	0		1	0	1	0	0	1	0	0	0	0		0	0	0
	14. Nonfiction prose (contemporary)	0	0	0	0	0	0	0		1	0	1	0	0	1	0	0	–	0		0	0	0
	15. Belles lettres (precontemporary)	1	0	1	0	0	0	0		0	0	1	0	0	1	0	0	0	0		0	0	1
	16. Belles lettres (contemporary)	0	0	0	0	0	0	0		0	0	0	0	0	1	0	0	0	0		0	0	0
	17. Any literary work	2	1	1	2	3	1	0		3	1	3	3	3	3*	3	1	0	2		3	3	1
	18. Movies and television	1	0	–	–	–	–	–		–	–	0	–	–	0	0	–	0	0		0	0	0
	19. Other mass media	1	1	–	–	–	–	–		–	–	0	–	–	0	0	–	–	0		0	0	0
Contextual information	20. Biography of authors	1	0	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–		–	–	–
	21. Literary, cultural, social, political, and intellectual history	2	1	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–		–	–	0
Literary theory	22. Literary terms	2	0	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–		–	–	0
	23. Critical systems	0	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–		–	–	–
Cultural information	24. Cultural information and folklore	2	–	–	–	–	–	–		0	–	0	0	0	0	–	–	–	0		–	–	0

The figures in the cells represent the emphasis in all the curriculum statements taken as a whole.

3*....extremely heavily emphasized
3.....heavily emphasized
2.....major emphasis
1.....minor emphasis
0.....mentioned but not emphasized
–.....not mentioned

FIGURE 1
Evaluation of Learning in Literature

CONTENT/BEHAVIOR MATRIX

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Content Analysis

Levels and Domains of Learning
COGNITIVE
MEMORIZATION Recall the definition; recall names, events, data
COMPREHENSION Describe in general terms, give a synopsis of; paraphrase; describe examples and illustrations; describe data
LOWER ORDER REASONING Interpret; explain the meaning; describe appropriate application; organize data; construct examples and illustrations; propose a rationale
APPLICATION Apply appropriately in simple (simulated) situations; solve problems using standard procedures
Apply in complex (real-world) situations; solve problems following a general model; generate data
ANALYSIS Analyze, categorize, differentiate components; describe relationships; relate parts to the whole; show cause and effect
SYNTHESIS Form generalizations; project outcomes; combine information in novel ways; create a model; formulate a theory; develop original solutions; produce a research design
EVALUATION Test a hypothesis, theory or a model; judge appropriateness or effectiveness; substantiate conclusions; prove
AFFECTIVE
AWARENESS Examine one's attitude toward; raise one's consciousness of
RESPONDING Investigate and seek further information
VALUING Develop a positive attitude toward; accept as a strongly felt value or belief
CHARACTERIZATION Incorporate as characteristic of one's behavior
PSYCHOMOTOR
GUIDED RESPONSE Perform in direct response to a demonstration or model; perform in a trial and error manner
MECHANISM Perform with confidence and proficiency

FIGURE 2
Content/Behavior Matrix Standard Form

Content Analysis

The content is written in by the instructor on the short axis. The manner in which the content is written depends a great deal on the level of specificity with which the instructor has analyzed the subject matter. If the instructor has gone to the extreme of constructing a "learning hierarchy" (Gagne, 1974) whereby every topic is broken down into its prerequisite sub-topics and displayed in an organizational chart, or if the instructor has engaged in a task analysis (Resnick, 1973) of the operations (s)he wants students to "learn," then the content analysis will be very detailed.

However, the content analysis may simply be thought of as a *specific topic outline* which the faculty member fills out down to the level of important terminology. Therefore, the major principles and generalizations, intellectual and physical operations, concepts, terminology and attitudes which make up the "body of knowledge" or subject matter of the course are listed on the short axis of the matrix in outline form. Figure 3 provides a matrix completed in this form for a very brief unit of instruction.

Behavior Analysis

When the "content analysis" has been completed, the instructor can then scan the long axis of the matrix, the "behavior analysis," and designate the domains and levels of learning which (s)he thinks appropriate to the course, the field of study and the students. This section represents an attempt to illustrate for the instructor in the simplest and most concise form the concepts of "domains" and "levels" of learning.

In this case certain changes have been made to the taxonomies as described by Bloom (1956), Krathwohl (1964), and Simpson (1966). The "comprehension" level of Bloom's cognitive domain has been divided into two categories: "comprehension," and "lower order reasoning." This was done to make it easier for faculty to distinguish between the relatively uncomplicated task of having students describe concepts and other information "in their own words," and the more complicated reasoning tasks of "interpreting the meaning of" or "providing a rationale for" such information.

In addition, the "application level" of Bloom's cognitive domain was separated into two levels of application, the second of which might best be thought of as "problem-solving." The difference once

WORKSHOP OBJECTIVES FOR THE CONTENT BEHAVIOR MATRIX

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Northeastern University

Content Analysis

Levels and Domains of Learning	COGNITIVE									AFFECTIVE				PSYCHOMOTOR		
	MEMORIZATION Recall the definition; recall names, events, data	COMPREHENSION Describe in general terms, give a synopsis of; paraphrase; describe examples and illustrations; describe data	LOWER ORDER REASONING Interpret; explain the meaning; describe appropriate application; organize data; construct examples and illustrations; propose a rationale	APPLICATION Apply appropriately in simple (stimulated) situations; solve problems using standard procedures	Apply in complex (real-world) situations; solve problems following a general model; generate data	ANALYSIS Analyze, categorize, differentiate components; describe relationships; relate parts to the whole; show cause and effect	SYNTHESIS Form generalizations; project outcomes; combine information in novel ways; create a model; formulate a theory; develop original solutions; produce a research design	EVALUATION Test a hypothesis, theory or a model; judge appropriateness or effectiveness; substantiate conclusions; prove		AWARENESS Examine one's attitude toward; raise one's consciousness of	RESPONDING Investigate and seek further information	VALUING Develop a positive attitude toward; accept as a strongly felt value or belief	CHARACTERIZATION Incorporate as characteristic of one's behavior		GUIDED RESPONSE Perform in direct response to a demonstration or model; perform in a trial and error manner	MECHANISM Perform with confidence and proficiency
1.0 The role of specifying instructional purposes in the systematic design of instruction	(X)	(X)	X							(0)	(0)	(0)	0			
1.1 Systems Design Model	X	(X)	X	X						0						
2.0 Behavioral Objectives 2.1 Content Behavior Matrix		(X) X	X	X						0						
3.0 Content/Behavior Matrix 3.1 Content Analysis	(X) (X)	(X) (X)	X X	X X	(X)	(X)	(X)	X		(0)	0	0				
3.2 Behavior analysis			X	X												
3.3 Relationship between content/behavior matrix and systematic design of instruction	(X)	(X)	(X)	(X)	X	X				(0)	0					
3.4 Advantages and disadvantages	(X)	X														
3.5 Variations on the concept of a taxonomy	(X)	X														

FIGURE 3
Workshop Objectives for the Content/Behavior Matrix

again is subtle but critical. Simple practice exercises that are obvious attempts to have students use and therefore better retain the concepts, principles or operations which they have recently been taught, are listed as "applications." This includes exercises that take place in the context of simplified or simulated real-life situations where the application of appropriate knowledge is made easier for the learner.

More complex situations, particularly real-life situations wherein students are expected to choose the proper concepts or strategies and apply, evaluate and revise these accordingly, are more difficult "problem-solving" activities. The implications for instructional design of choosing this level of learning as opposed to the prior level are obvious. Most faculty furthermore end their instruction at the prior level without consideration of more complex applications.

It is important to note at this point that both the "application" and "problem-solving" levels are not independent of Bloom's "analysis," "synthesis," and "evaluation" levels. Indeed, the authors of the original cognitive taxonomy are the first to admit that their breakdown of intellectual functioning is only a working tool for instructional planning rather than a true model of human learning and thinking. The analytical, creative and evaluative operations of the learner are constantly at work at all levels of learning. The question before the instructional planner is not one of what category of intellectual functioning to exercise, but rather, what aspect of the intellectual system will be most emphasized in response to a given instructional stimulus. The proposed schema suggests that the instructor plan specific exercises at the "analysis," "synthesis" and "evaluation" levels which stimulate these functions *more* than application level tasks. Similarly, the affective dimensions of learning are always present whatever the learning task.

The categorical divisions of cognitive, affective and psychomotor domains often lead to the planning of instruction in only one domain, particularly when the instructor's plans are formulated in terms of behavioral objectives. The matrix approach suggests the simultaneous occurrence of these events in learning and thinking, and provides a convenient mechanism for the instructor to indicate these interactions with respect to each line topic of the content analysis.

On the matrix, the "affective domain" of Krathwohl, Bloom and Masia (1964) was altered slightly in that the level of "organization" was omitted. In addition, the psychomotor domain of Simpson (1966) was substituted for the more common schema formulated by Harrow (1972), in that the latter appears to be more of a stage model of physical development than a category system depicting (alternative) levels of psychomotor achievement. This system was also simplified for reasons of clarity and efficiency with respect to instructional planners. The levels of perception, set, complex overt response, adaptation and origination were omitted from Simpson's system.

Through the simple procedure of checking all the squares that appear desirable and appropriate, the instructor clarifies the goals of the instruction in sufficient detail to plan adequate teaching and learning, testing, and evaluation procedures. Indeed, particular categories of learning and testing activities could be added to the present framework by creating a third dimension or axis in a cube diagram. Such logical relationships between levels of learning and alternative instructional methods are suggested by Grasha (1975) and Alexander and Davis (1977).

The provision of this kind of information, however, as well as the numerous logistical and financial factors implicit in alternative instructional strategies, are an important aspect of the expertise which the instructional designer brings to the instructional planning process and can perhaps best be communicated verbally to the instructor.

It should also be noted that the manner in which the matrix in Figure 3 is completed conforms to the taxonomic concept which presumes that each level of learning subsumes each prior level. In other words, each step in each domain is a prerequisite to proceeding to the next level. Thus students may be required to demonstrate adequate achievement or ability at each level, and therefore proceed in lockstep fashion to the higher reaches of each domain (or more than one domain in simultaneous fashion). If students are asked to engage the subject matter at more advanced levels, it is assumed that they could also perform the less advanced level tasks if asked to do so.

On the matrix in Figure 3 this taxonomic concept is followed for illustrative purposes in that "x's" and "o's" start from the simplest levels of learning on the left side (nearest the short axis) and proceed continuously to the most advanced levels desired by the instructor. These aspects of student learning which are assumed by the instructor—in other words, those for which no instructional activities or testing procedures have been designed—are indicated with parentheses around the "x's" and "o's." In practice, the taxonomic concept can simply be assumed, and the levels of student learning which will not be directly instructed or tested need not be indicated on the matrix.

Obviously, there are various methods for using the basic matrix format, and it is perfectly possible, if not advisable, to change the categories of behaviors and their wording to suit different instructional situations and subject areas.

Content/Behavior Matrix Versus Behavior Objectives

The efficiency of the content/behavior matrix approach compared to the traditional behavioral objectives approach is illustrated in two examples: Figures 4A and 4B, and Figures 5A and 5B.

In Figures 4A and 5A, the behavioral objectives for two units of instruction are stated. In Figure 4A, an attempt is made to use the classic three-part format (Mager, 1975): (1) statement of conditions; (2) behavior of learner; and (3) standards of performance. In Figure 5A the more common practice of shortcutting the classic three-part technique is illustrated.

In Figures 4B and 5B, the instructional "objectives" for the same units are represented in matrix form. As explained earlier, marks are placed only in those squares where actual instruction and/or testing will take place. For certain indicated levels of instruction, the instructor assumes that students would be capable of performing at prior levels if asked to do so. This procedure allows the instructor and the designer to recognize immediately what types of teaching and learning activities will actually be taking place in the available instructional time.

For example, students learning the information on "Propaganda Techniques," (Figure 4B) will be asked to memorize and recall the definition of seven so-called techniques during class. They will skip the step of elaborating or summarizing in their own words those definitions ("comprehension level") and will proceed to the point of

FIGURE 4A

Objectives for "Propaganda Techniques"

1.0 After reading the article, "How to Detect Propaganda," and listening to the classroom lecture and discussion on this article, the student will be able to:

- 1.1 Define propaganda utilizing all major components of the definition contained in paragraph three (3) of the article;
- 1.2 Explain the importance of studying propaganda;
- 1.3 Explain the difference between propaganda and scientific analysis;
- 1.4 Recall the names of the seven (7) propaganda devices from the article, and for each one, identify the primary components of the device as well as one (1) example or illustration of each.

2.0 Given certain hypothetical situations within their school, students will explain how each of the propaganda devices might be used and to what effect.

3.0 Given a more complex hypothetical situation in which the student may find himself/herself (for example, a political campaign) the student will select among the seven (7) propaganda devices that (s)he feels can be applied effectively to the situation. (S)He will then formulate the particular strategies whereby each device would be implemented and predict the possible options. Classmates, acting as a panel of judges, will rate each student's use of these devices.

4.0 By means of a daily log, each student will record all instances of propaganda which (s)he encounters each day. At the end of one week, these instances will be summarized, placed in the seven (7) categories of devices, and described in a written report not to exceed five (5) pages.

(OPTION I)

5.0 Given the possibility of planning as a class to utilize one or more propaganda devices in order to achieve a desirable purpose, each student will express in writing his/her willingness to participate and provide a rationale for this decision.

(OPTION II)

5.0 In a brief essay, students will defend or attack the proposition that "Propaganda devices are a major threat to people in a free country. Therefore at least some part of every course in high school English should be devoted to the study of these devices." Papers will be graded on originality and the ability to support a point of view with factual detail.

Propaganda Techniques

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Content Analysis

| Levels and Domains of Learning | | |

FIGURE 5A

LIFE/CAREER PLANNING CURRICULUM

Goals and Objectives

GOAL I: Students will identify interests, abilities, values and needs, and use self knowledge in career decision making and career planning.

SUBGOALS:

1. Students will appreciate the importance of using self knowledge in making career choice.
   - 1.1 Students will list reasons why self knowledge is crucial for realistic career choice.
   - 1.2 Students will state specific ways self knowledge can be utilized in career planning.
2. Students will acquire information about personal characteristics of self.
   - 2.1 Given inventories and class activities, students will identify their interests.
   - 2.2 Students will identify some personal and social values which affect their way of life.
   - 2.3 Students will identify values of family, friends and society, and evaluate whether these values are congruent with their own values.
   - 2.4 Students will evaluate the impact values of family, friends, and society on their own values.
   - 2.5 Students will identify and rank order their most important work values.
   - 2.6 Students will evaluate whether there is a consistency between expressed values and actions.
   - 2.7 Students will identify their abilities, natural talents and areas of proficiency.
   - 2.8 Students will identify which abilities can be strengthened and identify ways to strengthen them.
   - 2.9 Students will identify some of their basic human and social needs.
3. Students will recognize what constitutes a lifestyle.
   - 3.1 Students will list and rank order some of the interests, abilities, values and/or needs which influence their lifestyle.
   - 3.2 Students will list and rank order some of the interests, abilities, values and/or needs which influence the lifestyle of family, friends and employers.
   - 3.3 Students will identify lifestyles of people working in career areas of interest to them.

3.4 Students will compare their lifestyle with those of people working in career areas related to their interests, and will list the similarities and differences.

4. Students will recognize the relationship between self knowledge and effective career decision making.
   4.1 Students will identify the assumptions behind the decision making process.
   4.2 Students will identify the steps of the decision making process.
   4.3 Students will identify how interests, abilities, values and needs have direct impact on the decision making process.
   4.4 Given a coop case study, students will use the decision making process in arriving at a solution.
   4.5 Students will use the decision making process in making an educational and/or career related decision.
   4.6 Students will recognize that decision making is a process that can be used throughout their lifetime.

5. Students will understand the process of goal setting, and will set tentative goals based on self knowledge.
   5.1 Students will review their interests, abilities, values and needs in preparation for goal setting.
   5.2 Students will state the four steps which lead to effective goal setting.
   5.3 Students will identify barriers that stand in the way of attaining goals, and will list some barriers they encountered in the past.
   5.4 Students will determine the extent to which they are a self-directing, self-determining individual.
   5.5 Students will determine the criteria for meaningful, worthwhile goals.
   5.6 Students will set some goals for themselves and list the specific steps (objectives) they can take to reach the goals.

6. Students will recognize self assessment as a lifelong process.
   6.1 Students will state reasons why self assessment is a lifelong process.
   6.2 Students will compare and contrast present interests, abilities, values and needs with those of five years ago.
   6.3 Students will propose a situation which might occur in their lifetime that would necessitate a comprehensive self assessment procedure.
   6.4 Students will identify how the shifting of a single value could change their career or life.
   6.5 Students will cite an example of a personal value that has changed their career or life.

LIFE/CAREER PLANNING

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Content Analysis

| | Levels and Domains of Learning | | |

LIFE/CAREER PLANNING
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Content Analysis

Content Analysis	Levels and Domains of Learning	COGNITIVE									AFFECTIVE				PSYCHOMOTOR		
		MEMORIZATION Recall the definition; recall names, events, data	COMPREHENSION Describe in general terms, give a synopsis of; paraphrase; describe examples and illustrations; describe data	LOWER ORDER REASONING Interpret; explain the meaning; describe appropriate application; organize data; construct examples and illustrations; propose a rationale	APPLICATION Apply appropriately in simple (simulated) situations; solve problems using standard procedures	Apply in complex (real-world) situations; solve problems following a general model; generate data	ANALYSIS Analyze, categorize, differentiate components; describe relationships; relate parts to the whole; show cause and effect	SYNTHESIS Form generalizations; project outcomes; combine information in novel ways; create a model; formulate a theory; develop original solutions; produce a research design	EVALUATION Test a hypothesis, theory or a model; judge appropriateness or effectiveness; substantiate conclusions; prove		AWARENESS Examine one's attitude toward; raise one's consciousness of	RESPONDING Investigate and seek further information	VALUING Develop a positive attitude toward; accept as a strongly felt value or belief	CHARACTERIZATION Incorporate as characteristic of one's behavior		GUIDED RESPONSE Perform in direct response to a demonstration or model; perform in a trial and error manner	MECHANISM Perform with confidence and proficiency
5.0 Goal-setting and achievement				x	x								0				
5.1 Goals		x					x	x	x		0						
5.2 Four steps		x															
5.3 Relationship of one's interests abilities, values and needs				x			x	x	x			0					
5.4 Barriers				x													
5.5 The extent of one's self-direction and self-determination				x			x	x	x			0					
6.0 Self-assessment			x			x	x							0			
6.1 Relationship to lifelong learning			x										0				
6.2 Relationship to career			x										0				

FIGURE 5B (continued)
Life/Career Planning

explaining their meaning, how they can be applied and constructing their own examples and illustrations ("lower order reasoning"). The students will then "apply" these concepts in some simplified situations where they will explain how each one of the propaganda devices might be used. Finally (for the cognitive domain) the students will be faced with certain real-world situations for which they will be asked to choose, apply and justify one or more of these propaganda devices. At the same time it is the indicated intention of the instructor to have the students examine their attitudes toward these propaganda devices, develop some curiosity and establish certain definite feelings (values) about their use. From these affective dimensions, the instructor will develop actual learning exercises and tests (perhaps one in the same) at the "valuing" level of affective learning as indicated by the "0" under "valuing." The instructor believes that no psychomotor learning is associated with these topics.

It becomes obvious by referring to the behavioral objectives associated with this same unit (Figure 4A) that the behavioral objectives approach offers certain definite advantages. For example, in objectives 1.0 and 3.0, the actual instructor and student activities are already indicated. In objectives statements 2.0 and 3.0 the specific hypothetical situations have not been described; however, the instructor has at least already defined the basic mode of instruction and is well on the way to producing a final sequence of specific learning activities. In addition, the means (standards) by which students will be evaluated in their work are fairly explicit. For enabling objective 1.1, for example, students must define propaganda utilizing "all major components of the definition contained in paragraph three of the article." Similarly, for objective 3.0, classmates "will rate each student's use of these [propaganda] devices," and in the case of objective 5.0 (Option II), student essays will be graded on "originality and the ability to support a point of view with factual detail." In other of the objectives, the instructor's evaluation procedures are implicit. For objective 1.4, students must "recall the names of the seven (7) propaganda devices"; in objective 4.0 students must produce a "log," and in objective 5.0 (Option I) they must produce a written statement. Obviously it would not take much additional effort for the planner of this lesson to formulate precise procedures and instruments for evaluation.

Even though all of the conditions and all of the methods of eval-

uation are not explicitly stated in these objectives (they rarely are except in workshops on how to write objectives), the objectives writing approach as demonstrated here can still be cumbersome.

Compared to the matrix approach it is difficult to tell at a glance what the important information is in the "propaganda" objectives and to what extent (in which domains, at what levels) students are to learn. By looking at the "Propaganda Techniques" matrix it is obvious that the seven propaganda techniques are of primary importance to the instructor, and not the broad concept of "propaganda" (which would be indicated by more emphasis at the "analysis level"). It is also readily apparent from the matrix that this instructor is keenly interested in students' affective learning of this topic. The simultaneous relationship of cognitive and affective learning about propaganda is demonstrated clearly.

The issues of clarity and ease of manipulation are better illustrated in the longer instructional unit on Life/Career Planning (Figures 5A and 5B). In order to write the objectives for only Goal 1 of that unit requires forty (40) separate statements and 588 words. The volume would be much greater if the "conditions" and "standards" of each objective were clearly delineated. An adequate depiction of the "objectives" for Goal 1 of this unit can be represented on the matrix in twenty-three brief topic statements totaling 88 words. In addition, it is immediately clear from the matrix that a great deal of the cognitive instruction will take place at the "analysis" level, and that the topics of "3.1-Lifestyles of specific careers," "5.1-Goals," "5.3-Relationship of one's interests, abilities, values and needs," and "5.4-Self-direction and self-determination" receive the greatest emphasis. Furthermore, a great deal of the instruction will be directed at affective objectives, and it is immediately obvious that traditional classroom lecture and discussion methods are not likely to accomplish the instructor's intentions. Students will not be involved in "application" level work to any great extent, and a minimum of class time will be spent in stimulating the recall of basic information. Given the ambitious goals for certain topics, it is also clear that significant amounts of class time must be devoted to these. Alternative instructional methods may need to be developed to address the remaining topics.

By examining and altering marks made on the matrix, the instructor can shift and rearrange the overall emphasis for the total lesson

quite easily, without the problem of rewriting behavioral objectives statements. Indeed, the very format of the matrix, with its clear indication of all the available domains and levels is a stimulation to the instructor to speculate on different patterns of emphasis.

As the length of lessons increases or when entire courses of study are being planned, such that many pages of behavioral objectives are involved, the difficulty of conceptualizing the primary areas of emphasis of the instruction increase dramatically, and the task of shifting areas of emphasis once objectives are stated can be discouraging.

In fact, for both the "Propaganda Techniques" and "Life/Career Planning" lessons, the final plan or blueprint from which the lesson is taught (meaning the sequence of learning activities), the time and materials required by each, the actions of the instructor and the anticipated actions of the learners (the lesson plan) have yet to be written. This is true both for the instructors using the behavioral objectives approach *and* the instructors using the matrix. It is proposed that the instructional planner can proceed from the content/behavior matrix to the actual lesson plan and omit numerous hours of writing behavioral objectives statements. It is further suggested that given an equivalent amount of preparation time, short-cuts in the planning process which will allow more time to be invested in developing learning activities and materials are worthwhile.

Stated differently, the most creative and rewarding instructional design tasks for the learners are the planning of learning activities and the production of interesting learning materials. Even faculty who have invested time in writing behavioral objectives often do not have sufficient time remaining to design learning activities and produce interesting materials. They therefore often settle of necessity for mundane presentational strategies of instruction. Using the content/behavior matrix approach requires much less faculty time and provides sufficient clarity about the purposes of the instruction to allow the instructor to proceed with the design of instructional strategies, student learning activities and related evaluation procedures.

Summary

In this paper, an argument has been made for the use of a content/behavior matrix in preference to the traditional behavioral objectives approach. This argument rests on the following assertions:

1. The content/behavior matrix is easier for faculty to understand in that it separates the task of producing a detailed outline of the subject matter, with which faculty are familiar, from the task of designating (taxonomic) "levels" and "domains" of learning with which most faculty are not familiar.
2. The matrix presents all three "domains" and "levels" of learning with appropriate action verbs on one document, thereby facilitating the incorporation of these concepts by faculty in their instructional planning.
3. The matrix provides an overview or profile of the entire instructional unit, making possible the immediate identification of the major areas of emphasis, and allowing for easy manipulation and revision.
4. The matrix requires substantially less time to produce than lists of behavioral objectives.

While the behavioral objectives approach has definite advantages, particularly when faculty are familiar with using it and when extensive planning time is available, the content/behavior matrix can achieve the result of clarifying instructional goals while allowing more time to design learning activities and produce instructional materials.

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